

1 TCAGATTTCCATCAGCAGGATGTGGGGGCTCAAGGTTCTGCTGCTACCTGTGGTGAGCTT 60
1 M W G L K V L L L P V V S F 14

61 TGCTCTGTACCCTGAGGAGATACTGGACACCCACTGGGAGCTATGGAAGAAGACCCACAG 120
15 A L Y P E E I L D T H W E L W K K T H R 34

121 GAAGCAATATAACAACAAGGTGGATGAAATCTCTCGGCGTTTAATTTGGGAAAAAACCT 180
35 K Q Y N N K V D E I S R R L I W E K N L 54

181 GAAGTATATTTCCATCCATAACCTTGAGGCTTCTCTTGGTGTCCATACATATGAACTGGC 240
55 K Y I S I H N L E A S L G V H T Y E L A 74

241 TATGAACCACCTGGGGGACATGACCAGTGAAGAGGTGGTTCAGAAGATGACTGGACTCAA 300
75 M N H L G D M T S E E V V Q K M T G L K 94

301 AGTACCCCTGTCTCATTCCCGCAGTAATGACACCCTTTATATCCCAGAATGGGAAGGTAG 360
95 V P L S H S R S N D T L Y I P E W E G R 114

361 AGCCCCAGACTCTGTCTGACTATCGAAAGAAAGGATATGTTACTCCTGTCAAAAATCAGGG 420
115 A P D S V D Y R K K G Y V T P V K N Q G 134

421 TCAGTGTGGTTCCTGTTGGGCTTTTAGCTCTGTGGGTGCCCTGGAGGGCCAACTCAAGAA 480
135 Q C G S C W A F S S V G A L E G Q L K K 154

481 GAAAACTGGCAAACCTCTTAAATCTGAGTCCCCAGAACCTAGTGGATTGTGTGTCTGAGAA 540
155 K T G K L L N L S P Q N L V D C V S E N 174

541 TGATGGCTGTGGAGGGGGCTACATGACCAATGCCTTCCAATATGTGCAGAAGAACCGGGG 600
175 D G C G G G Y M T N A F Q Y V Q K N R G 194

601 TATTGACTCTGAAGATGCCTACCCATATGTGGGACAGGAAGAGAGTTGTATGTACAACCC 660
195 I D S E D A Y P Y V G Q E E S C M Y N P 214

661 AACAGGCAAGGCAGCTAAATGCAGAGGGTACAGAGAGATCCCCGAGGGGAATGAGAAAGC 720
215 T G K A A K C R G Y R E I P E G N E K A 234

FIG. 1A

721 CCTGAAGAGGGCAGTGGCCCGAGTGGGACCTGTCTCTGTGGCCATTGATGCAAGCCTGAC 780
 235 L K R A V A R V G P V S V A I D A S L T 254

 781 CTCCTTCCAGTTTTACAGCAAAGGTGTGTATTATGATGAAAGCTGCAATAGCGATAATCT 840
 255 S F Q F Y S K G V Y Y D E S C N S D N L 274

 841 GAACCATGCGGTTTTGGCAGTGGGATATGGAATCCAGAAGGGAAACAAGCACTGGATAAT 900
 275 N H A V L A V G Y G I Q K G N K H W I I 294

 901 TAAAAACAGCTGGGGAGAAAACCTGGGGAAACAAAGGATATATCCTCATGGCTCGAAATAA 960
 295 K N S W G E N W G N K G Y I L M A R N K 314

 961 GAACAACGCCTGTGGCATTGCCAACCTGGCCAGCTTCCCCAAGATGTGACTCCAGCCAGC 1020
 315 N N A C G I A N L A S F P K M * 329

 1021 CAAATCCATCCTGCTCTTCCATTTCTTCCACGATGGTGCAGTGTAAAGATGCACTTTGGA 1080
 1081 AGGGAGTTGGTGTGCTATTTTTGAAGCAGATGTGGTGATACTGAGATTGTCTGTTTCAGTT 1140
 1141 TCCCCATTTGTTTGTGCTTCAAATGATCCTTCCCTACTTTGCTTCTCTCCACCCATGACCT 1200
 1201 TTTTCACTGTGGCCATCAGGACTTTCCCTGACAGCTGTGTACTCTTAGGCTAAGAGATG 1260
 1261 TGACTACAGCCTGCCCCTGACTGTGTTGTCCCAGGGCTGATGCTGTACAGGTACAGGCTG 1320
 1321 GAGATTTTACATAGGTTAGATTCTCATTACGGGACTAGTTAGCTTTAAGCACCCCTAGA 1380
 1381 GGACTAGGGTAATCTGACTTCTCACTTCCCTAAGTTCCCTTCTATATCCTCAAGGTAGAAA 1440
 1441 TGTCTATGTTTTCTACTCCAATTCATAAATCTATTCATAAGTCTTTGGTACAAGTTTACA 1500
 1501 TGATAAAAAGAAATGTGATTTGTCTTCCCTTCTTTGCACTTTTGAAATAAAGTATTTATC 1560
 1561 TCCTGTCTACAGTTTAATAAATAGCATCTAGTACACATTCAAAAAAAAAAAAAAAAAAAAAA 1619

FIG. 1B

	1		50
HumcatO	.....MW	GLKVLLLPVV SFA.LYPEEI LDTHWELWKK	THRKOYNNKV
RabOC-2	.....MW	GLKVLLLPVV SFA.LHPEEI LDTQWELWKK	TYSKOYNSKV
HumcatS	.....MKR	LVCVLLVCSS AVAQLHKDPT LDHHWHLWKK	TYGKOYKEKN
HumcatL	.....MNPTL	ILAAFCLGIA S.ATLTFDHS LEAQWTKWKA	MHNRLY.GMN
HumcatH	MWATLPLLCA	GAWLLGVPVC GAAELSVNSL EKHFHKSWS	KHRKTYST..
HumcatB	.....	.....MWQLWAS	LCCLLVLANA
HumcatD	.....MQP	SSLLPLALCL LAAPASALVR IPLHKFTSIR	RTMSEVGGSV
HumcatE	.....MKT	LLLLLLVLE LGEAQGSLHR VPLRRHPSLK	KKLRARSQ.L
HumcatG	.....MQP	LLLLLAFLLP TGAEAGEI..	.....IGGRE
	51		100
HumcatO	DEISRRL.IW	EKNLKYISIH NLEASLGVHT YELAMNHLGD	MTSEEVVQKM
RabOC-2	DEISRRL.IW	EKNLKHISIH NLEASLGVHT YELAMNHLGD	MTSEEVVQKM
HumcatS	EEAVRRL.IW	EKNLKFMVLMH NLEHSMGMHS YDLGMNHLGD	MTSEEVMSLM
HumcatL	EEGWRR.VW	EKNMKMIELH NOEYREGKHS FTMAMNAFGD	MTSEEFQVM
HumcatH	EEYHHRLOTF	ASNWRKINAH N....NGNHT FKMALNQFSD	MSFAEIKHKY
HumcatB	RSRPSFHPVS	DELVNYVNKR NTTWQAGHNF YNVDMSYLKR	LCGTFL....
HumcatD	EDLIAKGPVS	KYSQAVPAVT EGPIPEVLKN Y.MDAQYYGE	IGIGTPPQCF
HumcatE	SEFWKSHNLD	MIQFTESCSM DQSAKEPLIN Y.LDMEYFGT	ISIGSPPQNF
HumcatG	SRPHSRPYMA	YLOIQSPAGQ SRCG.....G F.LVREDFVL	TAAHCWGSNI
	101		150
HumcatO	TGLKVPLSHS	RSNDTLYIPE WEGRAP.DSV DYRKKG.YVT	PVKNOGQCGS
RabOC-2	TGLKVPPSRS	HSNDTLYIPD WEGRTP.DSI DYRKKG.YVT	PVKNOGQCGS
HumcatS	SSLRVP.SQW	QRNIT.YKSN PNRILP.DSV DWREKG.CVT	EVKYQGSCGA
HumcatL	NGFQ...NRK	PRKGKVFQEP LFYEAP.RSV DWREKG.YVT	PVKNOGQCGS
HumcatH	L.WSEPQNCS	ATKSNYLRGT ..GPYP.PSV DWRKKGNFVS	PVKNOGACGS
HumcatB	.....GGPK	PPQRMFTED LKLPASFDAR EQWPQCPTIK	EIRDQGSCGS
HumcatD	TVVFDTGSSN	LWVPSIHCKL LDIACWIHHK YNSDKS..ST	YVKNGTSTFDI
HumcatE	TVIFDTGSSN	LWVPSVYCT. .SPACKTHSR FQPSQS..ST	YSQPGQSFSI
HumcatG	NVTLG.....	.....AHNIQRR ENTQQH..IT	ARRAIR..HP
	151		200
HumcatO	CWAFSSVGAL	EGQLKKKTGK LLN..LSPQN LVDCVSE...ND..	GCGGGY
RabOC-2	CWAFSSVGAL	EGQLKKKTGK LLN..LSPQN LVDCVSE...NY..	GCGGGY
HumcatS	CWAFSAVGAL	EAQLKLKTGK LVS..LSAQN LVDCSTEKYG	NK..GCNNGF
HumcatL	CWAFSATGAL	EGQMFRTGR LIS..LSEQN LVDC.SGPQG	NE..GCNNGL
HumcatH	CWTFSTTGAL	ESAIAIATGK MLS..LAEQQ LVDC.AQDFN	NY..GCQGG
HumcatB	CWAFGAVEAI	SDRICIHTNA HVSVEVSAED LLTCCGSMCG	D...GCNNGY
HumcatD	HYGSGSLSGY	LSQDTVSVPC QSASSASALG GVKVERQVFG	EATKQPGITF
HumcatE	QYGTGSLSGI	IGADQVSV..E GLTVVGQQFG	ESVTEPGQTF
HumcatG	QYNQRTIQND	IMLLQLSRR. ....VRRNRNVNP	VALPRAQGL

FIG.2A

	201		250
HumcatO	MTNAFQYVOK	NRGIDSEDAY	.....PYVGQEE
RabOC-2	MTNAFQYVQR	NRGIDSEDAY	.....PYVGQDE
HumcatS	MTTAFQYIID	NKGIDSDASY	.....PYKAMD
HumcatL	MDYAFQYVQD	NGGLDSEESY	.....PYEATEE
HumcatH	PSQAFQYILY	NKGIMGEDTY	.....PYQKDG
HumcatB	PAEAWNF.WT	RKGLVSGGLY	ESHVGCPRYS IPPCEHHVNG SRPPCTGEGD
HumcatD	IAAKFDGIL.	..GMAYPRIS	VNNVLPVFDN LMQOKLVDQN IFSFYLSRDP
HumcatE	VDAEFDGIL.	..GLGYPSLA	VGGVTPVFDN MMAQNLVDLP MFSVYMSSNP
HumcatG	RPGTLCTVA.	..G..WGRVS	MRRGTDTLRE VQLRVQRDRQ CLRIFGSYDP

	251		300
HumcatO	SCM.....	YNPTGKAAK	CRGYREIPEG N.EKALKRAV ARVGPVSVAI
RabOC-2	SCM.....	YNPTGKAAK	CRGYREIPEG N.EKALKRAV ARVGPVSVAI
HumcatS	KCQ.....	YDSKYRAAT	CSKYTELPYG R.EDVLKEAV ANKGPVSVGV
HumcatL	SCK.....	YNPKYSVAN	DTGFVDIPK. Q.EKALMKAV ATVGPISVAI
HumcatH	YCK.....	FQPGKAIGF	VKDVANITIIY D.EEAMVEAV ALYNPVSFAP
HumcatB	TPKCSKICEP	GYSPTYKQDK	HYGYNSYSVS NSEKDIMAEI YKNGPVEGAF
HumcatD	DAQPGGELML	GGTDSKYYKG	SLSYLVNTRK AYWQVHLDQV EVASGLTLCK
HumcatE	EGGAGSELIF	GGYDHSFSG	SLNWVPVTQK AYWQIALDNI QVGGTVMFCS
HumcatG	RRQ.....	.....ICVGR	RERKAAPK.. GDSGGPLLCN

	301		350
HumcatO	DASLTSFQFY	SKGVYYDESC	..NSDNLNHA VLAVGYGIQ. ...KGNKHWI
RabOC-2	DASLTSFQFY	SKGVYYDENC	..SSDNVNHA VLAVGYGIQ. ...KGNKHWI
HumcatS	DARHPSFFLY	RSGVYYEPSC	...TONVNHG VLVVGYGDL. ...NGKEYWL
HumcatL	DAGHESFLFY	KEGIYFEPDC	..SSEMDHG VLVVGYGFES TESDNKYYWL
HumcatH	EVTQD.FMMY	RTGIYSSTSC	HKTPDKVNHA VLAVGYG... ..EKNIGIPYWI
HumcatB	SV.YSDFLLY	KSGVYQHTG	EMMGG...HA IRILGWGVE. ...NGTPYWL
HumcatD	EGCEA...IV	DTGTSLMVGP	VDEVRELQKA IGAVPLIQGE YMIPCEKVST
HumcatE	EGCQA...IV	DTGTSLITGP	SDKIKQLQNA IGAAP.VDGE YAVECANLNV
HumcatG	NVAHG...IV	SYGKSSGVPP	....EVFTRV SSFLPWIRT MR....SFKL

	351		400
HumcatO	IK.....NS	WGENWGNKGY	ILMARNKNN CGIAN..LAS FPKM.....
RabOC-2	IK.....NS	WGESWGNKGY	ILMARNKNN CGIAN..LAS FPKM.....
HumcatS	VK.....NS	WGHNFGEEGY	IRMARNKGNH CGIAS..FPS YPEI.....
HumcatL	VK.....NS	WGEEWGMGGY	VKMAKDRRNH CGIAS..AAS YPTV.....
HumcatH	VK.....NS	WGPOWGMNGY	FLIERGK.NM CGLAA..CAS YPIPLV....
HumcatB	VA.....NS	WNTDWGDNGF	FKILRGQ.DH CGIESEVVAG IPRTDOYWEK
HumcatD	LPAITLKLGG	KGYKLSPEDY	TLKVSQAGKT LCLSGFMGMD IPPPSGPLWI
HumcatE	MPDVTFTING	VPYTLSPATY	TLLDFVDGMO FCSSGFQGLD IHPPAGPLWI
HumcatG	LDQMETPL..	.....	.....

FIG.2B

	401	428
HumcatO	.....	.....
RabOC-2	.....	.....
HumcatS	.....	.....
HumcatL	.....	.....
HumcatH	.....	.....
HumcatB	I.....	.....
HumcatD	LGDVFIGRYY TVFDRDNRRV GFAEAARL	
HumcatE	LGDVFIRQFY SVFDRGNRRV GLAPAVP	
HumcatG	.....	.....

FIG.2C